

ES&H manual

Environment, Safety, and Health

Volume I

Part 3: Safety Analysis and Work Plans and Procedures

Document 3.4 Preparation of Work Procedures

Recommended for approval by the ES&H Working Group

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New document or new requirements

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3.4

Preparation of Work Procedures*

Contents

1.0 Introduction 1

2.0 Procedure Requirements..... 1

 2.1 Developing Work Procedures 1

 2.2 Reviewing Work Procedures..... 2

 2.3 Approving Work Procedures 2

 2.4 Revising Work Procedures 2

 2.5 Controlling Work Procedures 5

 2.6 Replacing Work Procedures 5

3.0 Responsibilities..... 5

 3.1 Responsible Individual 5

 3.2 Workers 6

 3.3 Authorizing Individual 6

4.0 Work Standards..... 6

5.0 Resources for More Information..... 6

Appendix A Terms and Definitions 7

* Editorial revision

3.4

Preparation of Work Procedures

1.0 Introduction

Operational work procedures shall be required when failure to correctly perform a specific sequence of steps for an activity could result in unacceptable consequences to the environment, safety, and health (ES&H). Work procedures also may be required by an Operational Safety Plan (OSP), Facility Safety Plan (FSP), or Integration Work Sheet (IWS) or as considered appropriate by the Responsible Individual to adequately protect Laboratory equipment and property. Work procedures for operations may be required when

- A work activity is so complex that an authorized and qualified worker may not successfully and safely complete it without a procedure.
- The work is prone to errors that can significantly affect safety.
- Sequenced coordination among a group of workers is required.
- A test procedure is required for certifying operational status or results (e.g., a post-maintenance or repair test where documentation of test methodology is necessary).
- Maintenance procedures for critical equipment are required.

This document contains requirements for preparing, reviewing, and approving work procedures. These requirements apply to any Laboratory work activity that meets one or more of the above criteria. Existing procedures shall be modified to comply with these requirements at their next revision cycle. Requirements for equipment operating procedures can be found in Document 3.5, "Conduct of Operations for LLNL Facilities," in the *ES&H Manual*.

2.0 Procedure Requirements

2.1 Developing Work Procedures

Each directorate shall follow the process in this document for developing work procedures. The Responsible Individual (see Appendix A for definition) shall direct preparation of work procedures and ensure that individuals responsible for verifying and implementing the procedures (i.e., conducting the work) are involved in this process.

Work procedures shall provide enough information to ensure the activity is performed safely. They shall be written clearly and concisely, with consideration given to the human-factors aspects of the work, and include the elements listed below. Existing procedures that do not contain these elements shall be revised to include them.

- Procedure title
- Procedure identifier
- Revision status
- The specific sequence of steps to be followed
- Concurrence and approval signatures

Table 1 provides more information about these and other recommended procedure elements.

2.2 Reviewing Work Procedures

All procedures shall be reviewed and revised in accordance with their specified schedules. Changes to existing procedures shall be reviewed by the individuals who originally reviewed the procedures, if possible.

Work procedures shall be verified (i.e., tested) to ensure their adequacy prior to final approval. In cases where verification testing of the procedure could pose a risk to safety, health or the environment, simulated testing may be required.

2.3 Approving Work Procedures

The authorizing individual shall approve work procedures, unless otherwise specified by the authorizing organization.

2.4 Revising Work Procedures

Work procedures will identify if on-the-spot changes are allowed. The procedure must describe the process for dealing with such changes and identify the individual(s) to be contacted for guidance in the case of unforeseen conditions. The procedure must also state who is authorized to make on-the-spot revisions to the procedure.

Permanent revisions shall be reviewed and approved (or disapproved) by the individual who approved the procedure within 10 working days of submittal.

Table 1. Required and recommended components.

Component	Description
Cover	<p>Contains the following information: (Required components are underlined; see Section 2.1)</p> <ul style="list-style-type: none"> • <u>Procedure title</u> – Unique title identifying the procedure. • <u>Procedure identifier</u> – Unique procedure identifier (e.g., usually a procedure number with an alpha prefix, such as HEAF 92-000). • <u>Revision status</u> – Date revised and, when applicable, an expiration date. • "Prepared by" signature(s) – Signature of the person(s) who generated or prepared the content of the document. • "Reviewed by" signature(s) – Signature of a person who checked the details of the document. The reviewer must read the entire document and provide comments to the preparer. The document must be reviewed carefully enough to locate and correct typographical, grammatical, and technical errors. • "<u>Concurred by</u>" signature(s) – Signature of a person who carefully read and who agreed with the content of the document. A concurrence signature of the facility point of contact may be included when the procedure incorporates facility controls, indicating that the work will cause no adverse impact on the safety envelope. • "<u>Approved by</u>" signature(s) – Signature of the single approving authority (or authorities, if the procedure requires approval by the management of more than one organization). The signature and date indicate formal approval of the procedure. • Effective date – Date the procedure was approved, unless otherwise specified. • Review date – Date the procedure is to be reviewed.
Header/footer	<p>Contains:</p> <ul style="list-style-type: none"> • Unique procedure identifier. • Revision status. • Page number using the format "x of y," where x is the actual page number and y is the total number of pages in the procedure.
Purpose	Contains a clear statement of the procedure's objective, (i.e., an explanation of why the procedure has been prepared).
Scope	Describes the work to be controlled, any significant limitations on the application of the procedure, and the equipment, laboratory, facility, area, and/or personnel the procedure is intended to cover.
Definitions	Identifies and defines terms and acronyms unique to the procedure.
Responsibilities	Lists the individuals that are responsible for the work to be performed and their specific responsibilities.
Procedure	Contains instructions that are concise but in enough detail to allow knowledgeable workers to easily understand what must be done. The instructions should be arranged in the normal or expected operating sequence. Procedures should contain only one step at a time. If appropriate, notes of caution or warning must precede the step. If instructions covering emergency conditions are required, they must be clearly identified as "emergency instructions."

Table 1. Required and recommended components. (cont'd.)

Component	Description
Procedure (cont'd)	<p>The following information should be included as applicable. Figures and tables can be used to convey this information.</p> <ul style="list-style-type: none"> • Safety considerations – A list of applicable safety or operating limitations, cautions, and warnings. This should include a discussion on any limitations of instrumentation being used. • Prerequisites – Any tools, instrumentation, documentation, or training required to begin work. • Description of equipment – A brief description of the equipment or system and its location (when applicable). • Required materials – Identification of any special materials and equipment required to execute the procedure. If there are special qualification or calibration requirements, these should also be identified. • Required personnel – The minimum number of people required to successfully complete the procedure. Any required special skills, knowledge, or abilities should be identified. • Description of expected responses – The expected response or action that results from performing a step in the procedure, if any. • Responses to off-normal events – When applicable, prescribe responses to off-normal events. • On-the-spot change process – If permitted, the process for dealing with on-the-spot changes to the procedure must be described. The procedure must identify the individual(s) to be contacted for guidance in the case of unforeseen conditions and who is authorized to make on-the-spot revisions to the procedure. • Component or system shutdown – When a component or system is shutdown, the procedure should address restoration requirements. • Disposition/disposal of excess materials – The procedure should address how excess material will be handled.
Checklists and signoff sheets	<p>Contains checklists and signoff sheets when needed. Signoff sheets are recommended when there are critical steps in a procedure. Each sign-off sheet should be applied only to one action. When a checklist is used to execute a procedure and/or for final sign off, it must be completed and signed by the individual(s) performing the task.</p>
Records	<p>Describes records that will be generated through the use of the procedure. Completed checklists and signoff sheets must be retained as directed in the procedure.</p>
References	<p>Lists documents referenced in the procedure. Additional reading material that provides background information may also be listed.</p>
Attachments	<p>Lists attachments to the procedure.</p>

A work procedure (e.g., test, maintenance, or operational) that is cited as a mitigation measure in a nuclear facility Safety Analysis Report or Technical Safety Requirement shall go through the Unreviewed Safety Question process defined in Document 51.3, "Unreviewed Safety Question Process," in the *ES&H Manual*.

2.5 Controlling Work Procedures

The authorizing organization will determine issuance and distribution requirements from an approved work procedure. The Responsible Individual will ensure that only approved work procedures, reflecting current requirements, are provided in the work place. Hard copies of outdated procedures shall be promptly removed from the workplace.

The authorizing organization shall specify how all revisions to work procedures shall be maintained.

2.6 Replacing Work Procedures

The Responsible Individual shall notify the workers and others involved when a new work procedure supersedes an existing procedure. Furthermore, the new procedure shall reference the old procedure that has been replaced.

3.0 Responsibilities

All workers and organizations shall refer to Document 2.1, "Laboratory and ES&H Policies, General Worker Responsibilities, and Integrated Safety Management," in the *ES&H Manual* for a list of general responsibilities. This section describes specific responsibilities of LLNL organizations and workers who have key safety roles.

3.1 Responsible Individual

- Identifies and controls needed procedures.
- Identifies the scope of activity to be covered by the procedure, the workers that will be involved, and the specific type of procedure to be employed.
- Consults with knowledgeable ES&H and other technical staff members whenever there is a question about the procedure.
- Ensures that only current, valid procedures are used to conduct work activities and that the procedure is readily available where the activity is being performed.
- Ensures that the procedure is appropriate for the activity and that workers apply it properly.
- Ensures the procedures are revised and distributed in accordance with the authorizing organization's requirements.

3.2 Workers

- Participate in procedure development and verification.
- Know the contents of the work procedure that governs a particular task.
- Follow the instructions given in the work procedure.
- Notify the Responsible Individual when unforeseen conditions arise or when the procedure needs to be modified.

3.3 Authorizing Individual

- Is appointed by the authorizing organization to fulfil its responsibilities.
- Approves procedures or delegates approval authority.
- Authorizes work once all controls have been confirmed to be implemented.

4.0 Work Standards

DOE Order 440.1A, "Worker Protection Management for DOE Federal and Contractor Employees," Attachment 2, "Contractor Requirement Document," Sections 1-11, 13-18 (delete item 18.a), 19 (delete item 19.d.3) and 22.

DOE O 5480.19, Chg 1, Conduct of Operations Requirements for DOE Facilities.

DOE O 414.1A, Quality Assurance, Attachment 1, "Contractors Requirements Document." |

5.0 Resources for More Information

See the ES&H Contact List for the individuals who can provide more information on this topic.

Appendix A

Terms and Definitions

Authorizing individual	The person designated by an authorizing organization who is responsible for a work activity's technical, financial, administrative, and ES&H objectives. Also the individual authorized by the associate director (or his/her designee) to accept and manage, on the Laboratory's behalf, the risks associated with the work activity. This person authorizes the work to proceed only after all controls are implemented and confirmed.
Authorizing organization	The Laboratory organization (e.g., directorate or group) responsible for a work activity's performance. This includes ensuring adequate funding and determining work priorities.
Critical	Specially important, indispensable, absolutely necessary, or vital (e.g., critical components).
Procedure	An established sequence of steps to be followed to accomplish work.
Responsible individual (RI)	The individual directly responsible for an operation, activity, or group of activities. The RI may be at any level within the organization and is formally identified by the activity's authorizing individual. In some organizations, this person is called the work supervisor. In most cases, the RI will be directing the work of others as part of the operation or activity. Examples of RI job titles include supervisor, division leader, group leader, project leader, project engineer, principal investigator, facility manager, building coordinator, lead experimenter, and lead technician.
Safety envelope	The parameters defining the limits for safe operation of a facility or operation. The range of conditions covered by the safety documentation of a process or facility under which safe operation is adequately controlled. Examples of parameters include the maximum amount of material that may be used or stored, the minimum operating temperature, and the maximum operating pressure.

Shall	Denotes a mandatory requirement. Exemptions from contractual and regulatory requirements are obtained through the process described in Document 2.3, "LLNL Exemption Process," in the <i>ES&H Manual</i>
Should (or may)	Denotes a recommended practice. Can also indicate a desirable or best-management practice. Written justification for declining to implement a "should" statement is not required.